

## REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed July 13, 2006. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

### **Present Status of Patent Application**

Claims 29-34, 36-40, 43-45, and 48-55 remain pending in the present application while claims 1-28, 35, 41-42, and 46-47 remain canceled. Applicants reserve the right to pursue the subject matter of these canceled claims in a continuing application, if Applicants so choose, and do not intend to dedicate the canceled subject matter to the public. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

#### **A. Indication of allowable subject matter**

Applicants wish to express their sincere gratitude towards Examiner for indicating that claims 31, 32, 40, 45, and 52-55 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

However, Applicants have opted not to rewrite these claims at this time because Applicants respectfully submit that these claims are allowable in their current form because of their dependency upon allowable independent claims. Applicants have provided below, reasons for asserting allowability of the independent claims.

#### **B. Claim Rejections under 35 U.S.C. §103(a)**

##### **Claims 29, 34, 38, and 48-50**

##### **Statement of the Rejection**

Claims 29, 34, 38, and 48-50 are rejected under 35 U.S.C. §103(a) as being obvious over Erdogan et al. (US Pub. No. 2002/0024704 A1) in view of Olsson et al. (US Patent No. 6,765,670 B1).

##### **Response to the Rejection**

##### **Claim 29**

The MPEP provides several guidelines for rejecting a claim under 35 U.S.C. 103(a). Specific reference is made to MPEP 706.2(j) *Contents of a 35 U.S.C. 103 Rejection*, which states in pertinent part:

To establish a *prima facie* case of obviousness, **three basic criteria must be met**. First, there must be **some suggestion or motivation**, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a **reasonable expectation of success**. Finally, the prior art reference (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria. (Emphasis added)

Applicants respectfully assert that the current rejection of claim 29 is improper because the Office action fails to satisfy the requirements of MPEP 706.2(j) for establishing a *prima facie* case of obviousness.

Firstly, the Office action fails to provide a satisfactory motivation or suggestion to modify or combine the cited prior art references. In this matter, the Office action alleges: *Erdogan does not expressly disclose a spectrometer module/signal monitoring function. However, it is well known to incorporate spectrometry and monitoring functions in communication systems in order to decrease the risk of network faults and to keep track of signals and to report when errors occur (e.g., see col. 1, lines 19-37 of Olsson). A skilled artisan would have been motivated to incorporate the spectrometer module of Olsson in order to measure properties of the optical signal (see col. 2, lines 18-22).* (Emphasis added). The Office further alleges that: "...it would have been obvious to a skilled artisan at the time of invention to incorporate a differential group delay component in the spectrometer module in order to extend detection and monitoring capabilities and further increase system reliability." (Emphasis added).

Applicants respectfully traverse these and other statements made in the rejection of claim 29 (as well as other claims such as claims 34, 38, and 48-50) due to multiple reasons. For example, the Office action statements related to a "spectrometer module/signal monitoring function" bears no relevance to Applicants' claim 29, because Applicants' claim 29 does not include a spectrometer. The Office action justifies the introduction of this arbitrary prior art element by stating: *it is well known to incorporate spectrometry and monitoring functions in communication systems*. Applicants respectfully assert that this statement is misleading and erroneously conclusive. Persons of ordinary skill in the art will recognize that monitoring of communication systems is more commonly carried out in the electrical domain (for example, by using bit-error rate (BER) measurements) rather than in the optical domain. Consequently, it is

not “well known” that a spectrometer module would be ordinarily used for optical signal monitoring, more so a spectrometer incorporating differential group delay. Though such a spectrometer may be used in a communication system for measuring group delay parameters, it is illogical to assert that Olssons’ spectrometer would be an obvious choice for incorporating into a system for time-domain equalization of an optical pulse as described by Applicants.

Applicants respectfully submit that Examiner has inserted his own subjective reasoning in carrying out the rejection without logical support in the cited prior art. As will be understood, it is improper to introduce such allegedly-anticipatory elements that are arbitrarily concocted by using Applicants’ own invention. In this regard, MPEP section 2141 specifically states under “Basic considerations which apply to obviousness rejections,” that: “The references must be viewed *without the benefit of impermissible hindsight vision afforded by the claimed invention.*” In this case, Applicants’ respectfully assert that delay component of claim 29 has been improperly used to concoct an allegedly-anticipatory element from the cited prior art.

Notwithstanding the impropriety of the Office action statements as discussed above, Applicants respectfully submit that the rejection fails to properly disclose a reasonable suggestion or motivation to modify Erdogan or to combine Erdogan with Olsson. Specifically, Erdogan does not disclose any shortcoming in his invention which would suggest to one of ordinary skill in the art the need to introduce additional elements (for e.g. a lens, a grating, a signal monitoring element, or a spectrometer), much less a spectrometer module containing a delay component that is identical to the delay component of Applicants’ claim 29.

Consequently, for at least the reasons cited above, the Office action fails to satisfy the first of the three criteria under MPEP 706.2(j).

The Office action rejection further fails to satisfy the third criterion (vis-à-vis teaching all claim limitations) because the cited prior art, individually or in combination, fails to at least disclose that part of Applicants’ claim 29, which states: a delay component optically coupled to the beamsplitter, the delay component configured to generate a delayed first beam by providing a first delay to a first beam in the plurality of beams and generate a delayed second beam by providing a second delay to a second beam in the plurality of beams. Persons of ordinary skill in the art will recognize that a spectrometer “providing a group delay” does not anticipate Applicants’ delay component, defined in claim 29, which produces two delayed beams and has been described as such in Applicants’ original specification and figures.

Furthermore, in addition to not disclosing Applicants’ “delay component,” the cited prior art, individually and/or in combination further fails to disclose the walk-off crystal defined

in Applicants' claim 29. In this matter, the Office action insists that the PBS of Erdogan anticipates Applicants' walk-off crystal by stating that Erdogan's "PBS of fig. 12 is considered a walk off crystal in that it performs the claimed function of splitting each of the first and second beams" (Emphasis added). Applicants respectfully assert that the Office action statement is erroneous because each of Erdogan's PBSs' is shown in fig. 12 (and described as such in various parts of his disclosure) as receiving a single beam that is split into two, in contrast to Applicants' walk-off crystal, which is configured to receive two delayed beams that are split into a first and a second pair of beams. Apart from not disclosing two distinct input beams, Erdogan does not even disclose that his single input beam is a delayed beam, which is in contrast to Applicants' first and second beams that are individually delayed by the delay component.

It will be further relevant to point out that the cited prior art individually or in combination fails to disclose any kind of delay component that is specifically placed ahead of a birefringent component. Attention is drawn to Applicants claim 29, which includes: "a birefringent component configured to receive the delayed first beam and the delayed second beam from the delay component." The cited prior art fails to disclose such an arrangement.

For at least the reasons provided above, Applicants respectfully assert that the Office action fails to additionally satisfy the third of the three criteria of MPEP 706.2(j).

In summary, for at least the reasons cited above, Applicants respectfully assert that the current rejection of claim 29 is improper because the Office action fails to a *prima facie* case of obviousness that satisfies MPEP 706.2(j) for a proper rejection under 35 U.S.C. 103(a). Therefore, Applicants hereby request withdrawal of the rejection, followed by allowance of claim 29.

#### **Claim 34**

Because claim 29 is allowable, claim 34 that depends directly on claim 29 is also allowable as a matter of law. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Consequently, Applicants respectfully request withdrawal of the rejection, followed by allowance of claim 34.

#### **Claim 38**

Claim 38 is a method claim for performing time-domain equalization. Several remarks related to MPEP 706.2(j) have been provided above in response to the rejection of claim 29. These remarks are equally pertinent to the rejection of claim 38. However, in the interests of brevity, remarks related to the first criterion will not be repeated herein.

Addressing the third criterion, Applicants respectfully assert that the cited prior art individually or in combination fail to at least disclose: “*optically delaying a first beam and a second beam in the plurality of beams,*” as well as “*transmitting the optically scaled first and second beams through a walk-off crystal to produce a first and as second pair of beams respectively.*” In addition to failing to disclose optical delay and transmission through a walk-off crystal, the cited prior art further fails to disclose that the first and second beams are provided to the walk-off crystal after undergoing individual delays.

Consequently, in addition to failing to satisfy the first criterion, the Office action further fails to satisfy the third of the three criteria of MPEP 706.2(j).

Therefore, Applicants respectfully assert that the current rejection of claim 38 is improper because the Office action fails to a *prima facie* case of obviousness for a proper rejection under 35 U.S.C. 103(a). Applicants hereby request withdrawal of the rejection, followed by allowance of claim 38.

**Claim 48**

Claim 38 is a system claim for performing time-domain equalization. Several remarks related to MPEP 706.2(j) have been provided above in response to the rejection of claims 29 and 38. Again, in the interests of brevity, remarks related to the first criterion, which are equally pertinent to the rejection of claim 48, will not be repeated herein.

Addressing the third criterion, Applicants respectfully assert that the cited prior art fails to disclose, individually or in combination, the delay component and the walk-off crystal as defined in Applicants’ claim 48. To reiterate a statement made above, the Office action fails to disclose how the allegedly-anticipatory delay component of Olsson’s spectrometer module can be construed **to be located ahead of** Erdogan’s **APC** (allegedly anticipating Applicants’ birefringent component in spite of the fact that the birefringent component accepts two input beams in contrast to the APC) **as well as ahead of PBS** (allegedly anticipating Applicants’ walk-off crystal in spite of the fact that the walk-off crystal also accepts two input beams in contrast to the PBS).

Consequently, Applicants respectfully assert that in addition to failing to satisfy the first criterion, the Office action fails to satisfy the third of the three criteria of MPEP 706.2(j).

Therefore, Applicants respectfully assert that the current rejection of claim 48 is improper because the Office action fails to a *prima facie* case of obviousness for a proper rejection under 35 U.S.C. 103(a). Applicants hereby request withdrawal of the rejection, followed by allowance of claim 48.

**Claims 49 and 50**

Because claim 48 is allowable, claims 49 and 50 that each depend directly on claim 48 are also allowable as a matter of law. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). Consequently, Applicants respectfully request withdrawal of the rejection, followed by allowance of claims 49 and 50.

**C. Claim Rejections under 35 U.S.C. §103(a)**

**Claims 33, 36, 37, and 51**

**Statement of the Rejection**

Claims 33, 36, 37, and 51 are rejected under 35 U.S.C. §103(a) as being obvious over Erdogan in view of Olsson and in further view of admitted prior art.

**Response to the Rejection**

**Claims 33, 36, 37**

Applicants traverse various Office action statements that erroneously assert that certain elements in the cited prior art anticipate Applicants' elements of claims 33, 36 and 37. For example, the Office action asserts that "It would have been obvious to a skilled artisan at the time of invention to include a polarization beam splitter to transmit signals to their desired destinations. Note that the polarizations of split signals can be configured to have different polarizations" (Emphasis added). Such an assertion is purely speculative as well as erroneous because it is not an automatic given that a polarization beam splitter would be used to transmit signals to desired destinations.

Claims 33, 36 and 37 are dependent on claim 29, which has also been rejected under 35 U.S.C. §103(a). Applicants have provided above reasons for allowability of claim 29. These include remarks asserting that combining the prior art of Erdogan with that of Olsson for carrying out the rejection under 35 U.S.C. §103(a), is improper because of a lack of motivation to do so. Because Erdogan and Olsson cannot be properly combined, Applicants respectfully assert that their further combination with admitted prior art is also improper. Consequently, the rejection of claims 33, 36 and 37 fails to satisfy the first criterion under MPEP 706.2(j).

Additionally, the prior art combination of Erdogan and Olsson fails to disclose all the elements of Applicants' claim 29 as required for a proper rejection under 35 U.S.C. §103(a). Because, each of the dependent claims 33, 36 and 37 incorporate all the elements of claim 29, the cited prior art combination of Erdogan, Olsson and admitted prior art (which is not shown in the Office action as including any of the elements of claim 29) also fails to disclose the elements of each of claims 33, 36 and 37. Consequently, Applicants respectfully assert that in addition to

failing to satisfy the first criterion, the Office action fails to satisfy the third of the three criteria of MPEP 706.2(j).

Therefore, Applicants respectfully assert that the current rejection of claims 33, 36 and 37 is improper because the Office action fails to a *prima facie* case of obviousness for a proper rejection under 35 U.S.C. 103(a). Applicants hereby request withdrawal of the rejection, followed by allowance of claims 33, 36 and 37.

**Claim 51**

Applicants traverse various Office action statements that erroneously assert that certain elements in the cited prior art anticipate Applicants' elements of claim 51.

Claim 51 is dependent on claim 48, which has also been rejected under 35 U.S.C. §103(a). Applicants have provided above reasons for allowability of claim 48. These include remarks asserting that combining the prior art of Erdogan with that of Olsson for carrying out the rejection under 35 U.S.C. §103(a), is improper because of a lack of motivation to do so. Because Erdogan and Olsson cannot be properly combined, Applicants respectfully assert that their further combination with admitted prior art is also improper. Consequently, the rejection of claim 51 fails to satisfy the first criterion under MPEP 706.2(j).

Additionally, the prior art combination of Erdogan and Olsson fails to disclose all the elements of Applicants' claim 48 as required for a proper rejection under 35 U.S.C. §103(a). Because, dependent claim 51 incorporates all the elements of claim 48, the cited prior art combination of Erdogan, Olsson and admitted prior art (which is not shown in the Office action as including any of the elements of claim 48) also fails to disclose the elements of claim 51. Consequently, Applicants respectfully assert that in addition to failing to satisfy the first criterion, the Office action fails to satisfy the third of the three criteria of MPEP 706.2(j).

Therefore, Applicants respectfully assert that the current rejection of claim 51 is improper because the Office action fails to a *prima facie* case of obviousness for a proper rejection under 35 U.S.C. 103(a). Applicants hereby request withdrawal of the rejection, followed by allowance of claim 51.

**D. Claim Rejections under 35 U.S.C. §103(a)**

**Claims 30, 39, 43, and 44**

**Statement of the Rejection**

Claims 30, 39, 43, and 44 are rejected under 35 U.S.C. §103(a) as being obvious over Erdogan in view of Olsson and in further view of Epworth (US Patent No. 6,271,952).

**Response to the Rejection**

Applicants traverse various Office action statements such as for example: “It would have been obvious to a skilled artisan at the time of invention to control the birefringent component of the beam in the system of Erdogan in order to increase signal quality and provide flexible rotation coefficients.” (Emphasis added). Such an assertion is purely speculative as well as improper. The erroneous assumption here is that Epworth’s control system is universally configured to control various systems such as that of Erdogan, and more specifically “in order to increase signal quality and provide flexible rotation coefficients.”

Claim 30

Claim 30 is dependent on claim 29, which has also been rejected under 35 U.S.C. §103(a). Applicants have provided above reasons for allowability of claim 29. These include remarks asserting that combining the prior art of Erdogan with that of Olsson for carrying out the rejection under 35 U.S.C. §103(a), is improper because of a lack of motivation to do so. Because Erdogan and Olsson cannot be properly combined, Applicants respectfully assert that their further combination with Epworth is also improper. Consequently, the rejection of claim 30 fails to satisfy the first criterion under MPEP 706.2(j).

Additionally, the prior art combination of Erdogan and Olsson fails to disclose all the elements of Applicants’ claim 29 as required for a proper rejection under 35 U.S.C. §103(a). Because, dependent claim 30 incorporates all the elements of claim 29, the cited prior art combination of Erdogan, Olsson and Epworth (which is not shown in the Office action as including any of the elements of claim 29) also fails to disclose the elements of claim 30. Consequently, Applicants respectfully assert that in addition to failing to satisfy the first criterion, the Office action fails to satisfy the third of the three criteria of MPEP 706.2(j).

Therefore, Applicants respectfully assert that the current rejection of claim 30 is improper because the Office action fails to a *prima facie* case of obviousness for a proper rejection under 35 U.S.C. 103(a). Applicants hereby request withdrawal of the rejection, followed by allowance of claim 30.

Claims 39, 43, and 44

Applicants traverse various Office action statements that erroneously assert that certain elements in the cited prior art anticipate Applicants’ elements of claims 39, 43, and 44.

Claims 39, 43, and 44 are dependent on claim 38, which has also been rejected under 35 U.S.C. §103(a). Applicants have provided above reasons for allowability of claim 38. These include remarks asserting that combining the prior art of Erdogan with that of Olsson for carrying out the rejection under 35 U.S.C. §103(a), is improper because of a lack of motivation



to do so. Because Erdogan and Olsson cannot be properly combined, Applicants respectfully assert that their further combination with Epworth is also improper. Consequently, the rejection of claims 39, 43, and 44 fails to satisfy the first criterion under MPEP 706.2(j).

Additionally, the prior art combination of Erdogan and Olsson fails to disclose all the elements of Applicants' claim 38 as required for a proper rejection under 35 U.S.C. §103(a). Because, each of the dependent claims 39, 43, and 44 incorporate all the elements of claim 38, the cited prior art combination of Erdogan, Olsson and Epworth (which is not shown in the Office action as including any of the elements of claim 38) also fails to disclose the elements of each of claims 39, 43, and 44. Consequently, Applicants respectfully assert that in addition to failing to satisfy the first criterion, the Office action fails to satisfy the third of the three criteria of MPEP 706.2(j).

Therefore, Applicants respectfully assert that the current rejection of claims 39, 43, and 44 is improper because the Office action fails to a *prima facie* case of obviousness for a proper rejection under 35 U.S.C. 103(a). Applicants hereby request withdrawal of the rejection, followed by allowance of claims 39, 43, and 44.


**Prior Art Made of Record**

The prior art made of record has been considered, but is not believed to affect the patentability of the presently pending claims.

**CONCLUSION**

For at least the reasons set forth above, Applicants respectfully submit that all objections and/or rejections have been traversed, rendered moot, and/or accommodated, and that claims 29-34, 36-40, 43-45, and 48-55 are in condition for allowance. Favorable reconsideration and allowance of the present application and all pending claims is hereby courteously requested. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the Undersigned Representative at (404)-610-5689.

Respectfully submitted,

  
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